5 inputs determine the right directional control valve.

A distributor-facing pre-quote checklist. If the customer answers most of these at the first call, the second call is the quote.

01

What's the PLC output voltage, 24 VDC, 120 VAC, or 240 VAC?

The single most common spec error on a valve quote. **24 VDC is the modern PLC default** and what every new build runs. 110/120 VAC is legacy U.S. industrial; 220/240 VAC is legacy European. A 24 VDC coil wired to 110 VAC **burns instantly**; a 110 VAC coil wired to 24 VDC will not actuate at all. Always confirm against the PLC output spec before quoting, especially on retrofits where the PLC may have changed but the wiring legacy voltage label is still on the panel.

02

How many cylinders / actuators does the machine carry, and what's the function code per cylinder?

Drives the manifold-vs-loose-valves decision. **2-3 cylinders = loose valves are fine; 4+ = manifold pays for itself in install labor.** Per station, function code follows the controlled cylinder: 5/2 single for spring-return-on-power-loss, 5/2 double for memory (holds last command), 5/3 closed/open/pressure-center for hold-position or hand-moveable, 3/2 for single-acting cylinders, vacuum on/off, and air motors.

03

Is the install area hazardous-classified, Class I Div 1/2, ATEX Zone 1/2, IECEx?

Flips the entire directional-control answer to ATEX or air-piloted. Get the area-classification drawing and the exact zone / gas group / temperature class before quoting: **Zone 1 IIB T4 is not interchangeable with Zone 2 IIA T3**. A wrong-cert valve at the wrong location is the kind of mistake that doesn't show up in startup test and surfaces only at the next OSHA or insurance audit.

04

How many valves can fire simultaneously, and what's the cycle rate?

Sizes the manifold supply port + the 24 VDC power supply feeding the coils. **Undersized supply causes pressure droop on simultaneous-firing events**: every cylinder on the manifold slows together, motion goes erratic. A 16-valve manifold at 200 mA per coil needs 3.2 A of headroom in burst conditions. Cycle rate sets the cycle-life requirement on the valve series (10M vs. 50M vs. 100M+ cycle ratings).

05

Is this a new build or a replacement on existing equipment?

New build = spec the integrator default (SMC SY manifold or AIGNEP 01V on ISO 5599 / 15407), plan 20-30% spare stations, mention IO-Link path. Replacement = **read the existing valve's nameplate and the existing manifold base**. If the existing manifold is ISO-standard, any compliant brand drops onto it without re-piping; if it's proprietary, the question becomes "replace base + valves together" vs. "proprietary cross-reference."